DRAFT BOF Biomass Background

Numerous state policies require protection of California's forests for public safety, economic and environmental benefits. As the 2010 Forests and Rangelands Assessment (the "2010 Assessment") points out, "Forests and rangelands, and urban forests, remain valued assets, critical to the economic, social, and environmental well-being of California." Forests provide income and jobs from the timber industry, tourism and recreation, livestock and more. Forests also provide much of the state's water supply and important fish and wildlife habitat. Rural and urban forests protect both water and air quality, and provide significant carbon sequestration.

The Legislature has recognized the importance of managing California's forests to meet the state's climate protection goals. In 2010, the legislature passed AB 1504 to amend the state's Forest Practices Act to explicitly recognize that forests "play a critical and unique role in the state's carbon balance by sequestering carbon dioxide from the atmosphere and storing it long term as carbon. There is increasing evidence that climate change has and will continue to stress forest ecosystems, which underscores the importance of proactively managing forests so that they can adapt to these stressors and remain a net sequester of carbon dioxide."

One of the most important means to ensure that forests remain net sequesters of carbon – and continue to provide their other many benefits – is fuel treatment to reduce fire risks and impacts. As the 2010 Assessment points out "wildfire poses a significant threat to life, public health, infrastructure and other property, and natural resources. . . Addressing wildfire as a threat is also a major management and policy issue." The US Forest Service, California Department of Forestry and Fire, Sierra Nevada Conservancy, California Energy Commission, Placer County and others are working together to identify and promote community-scale biomass facilities in high fire hazard areas to reduce fire risks while providing local energy and other benefits.

The goals Contained in the State's 2012 Bioenergy Action Plan are:

- Increase environmentally and economically sustainable energy production from biomass residues, including but not limited to forest-derived wood waste, agricultural and food processing waste, wastewater, and urban-derived biomass.

- Increase the use of biomass for local distributed generation, combined heat and power facilities, fuel cells, and renewable transportation fuels.

- Undertake research and demonstration projects and develop funding mechanisms to stimulate deployment of cost-effective and sustainable bioenergy technologies.

- Stimulate economic development in rural and economically disadvantaged regions of the state.

- Reduce the risks and impacts of wildfires in forested regions.

- Improve air and water quality.

- Increase diversion of biomass from landfills.

- Streamline the permitting process through collaboration with stakeholders and local, regional, state, and federal agencies.

- Reduce emissions of potent GHG emissions such as methane that would otherwise be released into the atmosphere from animal waste and decomposing organic material.

Despite its many benefits, bioenergy production uses only 15 percent of California's available biomass waste, and production is decreasing. Regulatory and financial incentives for renewable power do not adequately monetize the many benefits of bioenergy, and regulatory barriers compound these challenges. Some incentives for bioenergy have been inconsistent or discontinued while others have failed to account for the additional costs and benefits of biomass. Environmental, waste disposal, public health, and pipeline safety regulations often complicate bioenergy permitting and development and sometimes contradict each other. Access to transmission lines, pipelines and other distribution networks also pose significant challenges to bioenergy development.

Some of these challenges require additional research and demonstration to ensure that bioenergy production is environmentally and economically sustainable. Other barriers require regulatory changes, including permit streamlining and consolidation, utility procurement requirements, financial incentives that reflect the many benefits of bioenergy, and other changes.

Recommended Actions of the Bioenergy Plan

To meet California's renewable energy, waste reduction, environmental, and public safety goals, the Bioenergy Working Group recommends the following:

- Increase research and development of diverse bioenergy technologies and applications, as well as their costs, benefits, and impacts.

- Continue to develop and make accessible information about the availability of organic wastes and opportunities for bioenergy development.

- Streamline and consolidate permitting of bioenergy facilities and reconcile conflicting regulatory requirements to the extent possible.

- Assess and monetize the economic, energy, safety, environmental, and other benefits of biomass.
- Facilitate access to transmission, pipelines, and other distribution networks.

Actions Recommended in Updated AB32 Scoping Plan

"Another forest action is to incentivize the sustainable use of biomass obtained from forest management practices to produce energy. This strategy diverts raw materials from being burned in open piles, and reduces criteria and GHG pollutant emissions. Open burn piles create particulate emissions, which can exacerbate health problems and interfere with attaining State and federal ambient air quality standards. In addition, open burning contains black carbon, which is a short-lived climate pollutant (SLCP). As discussed in Chapter II, SLCPs have a shorter lifetime in the atmosphere and have a higher pound-for-pound warming potential than CO2, and as such, during these shorter lifetimes they are very potent. Because SLCPs are removed from the atmosphere rather quickly, reducing their emissions results in immediate climate and air quality benefits. Cross-sector coordination is needed between the energy, waste, water, natural and working lands, and agriculture focus groups to develop recommendations for addressing economic, infrastructure, and regulatory hurdles regarding the input of bioenergy into the electricity grid from both small-scale and utility-scale biomass energy facilities."

Specific Actions Recommended by the Board of Forestry and Fire Protection (2010 strategy report)

1.1 Increase Bioenergy from Forest Waste to Reduce Fire Hazards
Problem Statement: Strategically placed, community-scale biomass facilities are important to reduce fire risks, restore forest ecosystem health and provide local energy needs in California. Costs, transmission access and permitting continue to pose challenges to community-scale forest biomass, however, and require inter-agency cooperation to overcome these barriers. State and federal agencies participate in a monthly biomass collaborative to identify and address these barriers, but the collaborative would be more effective with the additional participation of the CPUC and California Environmental Protection Agency (CalEPA), additional industry stakeholders, and the utilities.

Action: The Resources Agency, Sierra Nevada Conservancy (SNC), CAL FIRE, Energy Commission and other agencies should continue working with stakeholders and expanding the forest biomass collaborative to identify and promote small-scale forest biomass projects that reduce fire hazards, restore healthier, more resilient forests, provide renewable energy, and promote rural

economic development. The CPUC and CalEPA should also participate in the forest biomass collaborative.

Action: The CPUC should consider, in consultation with CAL FIRE and other relevant entities, the development of fire-threat maps that identify areas where there is an elevated risk of catastrophic power-line fires occurring, and the possible identification on such maps of areas where vegetation biomass should be removed for fire safety purposes. The CPUC should also consider mechanisms to incentivize development of strategically placed, community-scale biomass to reduce fire hazards and should consider the inclusion of bioenergy from forest waste in the planned contractor assessment of societal and environmental benefits of bioenergy, as identified in Action 2.1b below.

Action: The Board of Forestry and Fire Protection adopted regulations for a Modified Timber Harvest Plan for Fuels Management. The rules applicable to this fuel treatment focused timber harvest plan became effective January 1, 2012. The Modified Timber Harvest Plan for Fuels Management prescribes standards for harvesting forest fuels which landowners can use to facilitate plan preparation, reduce costs associated with harvest plan preparation costs and simplify regulatory compliance. Effective outreach by CAL FIRE to landowners and Registered Professional Foresters will be critical to understanding the utility of this new harvest plan option and the benefits it can provide to landowners who wish to conduct fuel treatment activities. To facilitate outreach CAL FIRE will conduct workshops and other outreach during 2012.

1.2. Establish Sustainability Standards for Forest Biomass Feedstock Sourcing, Emerging Markets, and Ecosystem Health

Problem Statement: One of the challenges of increasing the utilization of forest biomass for energy and biofuels are stakeholder concerns that increased markets will promote more intensive harvest practices, resulting in unanticipated impacts, which existing regulations may not adequately address.

The Interagency Forest Work Group (Climate Action Team subgroup) is working across agencies to define and ensure sustainable forest biomass utilization for energy. CAL FIRE, Energy Commission, and the United States Forest Service (USFS) have developed a proposal to project and analyze how markets, landowner behavior, and regulations may interact to affect biomass harvest practices and sustainability of forested landscapes. The California Air Resources Board's (ARB's) LCFS program and Energy Commission's AB 118 Program will assist with this project, providing input on biofuel market trends and parameters. The intent of this analysis is to assess the adequacy of existing regulations and identify potential gaps.

Action: Define and ensure sustainable forest biomass utilization for energy.

1.3. Provide Public Education and Outreach

Action: Provide public education and outreach to communities, local agencies, and citizen groups, such as Fire Safe Councils, reduce wildfire hazards and damages (such as hazardous fuel removal, identification of priority areas for fuels treatments, and education about wood biomass treatments) in compliance with the 2010 Strategic Fire Plan.

1.6. Update the Biomass Resource Assessment
Action: Update the assessment of California biomass resources, identify locations of biomass material and uses by region, assess value for fire hazard reduction, and evaluate and recommend cost-effective strategies for sustainably collecting and distributing biomass.

2.1. Quantify the Costs and Benefits of Bioenergy
Action 2.1.a. Update research on bioenergy utilization co-benefits and quantify the cost-benefit of biomass use.
Completion Date: December 31, 2013

2.4. Community-Scale Woody Bioenergy Facilities
Problem Statement: Biomass energy facilities are essential to achieving forest restoration activities and rural economic development objectives in California's forested areas. Strategic placement and sustainability are key considerations in addressing this issue. Broad-based stakeholder support can help foster development and acceptance of properly scaled facilities that will help rural communities achieve a triple bottom line of improving economic, environmental, and social health. The Sierra Nevada Conservancy is providing state agency leadership in working with a diverse group of stakeholders and government entities to promote small-scale bioenergy projects that are consistent with forest restoration, economic development, and social equity objectives.
Coordinate the Biomass Working Group, a collaborative of agencies, stakeholders and technical experts, to:
Action 2.4.a. Refine criteria for "community-scale" biomass energy facilities, identify a few candidate projects, and seek developers and cost-share for deploying and demonstrating commercial and emerging community-scale bioenergy technologies.
Action 2.4.b. Provide input to CPUC and others on ratepayer and other benefits of converting forest biomass to energy; identify areas where additional research is needed, and coordinate with and/or secure funding from state agencies, private and federal sources, Western Governors' Association or others for this purpose;
Action 2.4.c. Identify and seek private, state, including public interest research and public goods charge, and federal funding for feasibility studies, pilot and demonstration projects, and research to support community-scale biomass utilization projects.

2.5. Biomass Energy Facility Development on CAL FIRE Forestry Conservation Camps

Problem Statement: Energy Commission staff recommends that California state government should target installing 2,500 MW of renewable energy on state properties to help meet the overall 20,000 MW statewide goal. CAL FIRE is exploring opportunities for installing one to three biomass projects for heat and power, using new technologies, at Forestry Conservation Camps. An initial feasibility study was conducted for a project located at CAL FIRE's Parlin Fork Conservation Camp. CAL FIRE is still in the process of completing a full feasibility analysis. The initial study identified four technologies appropriate for a 1-3 MW size plant. Two technologies using gasification were identified which would alleviate water availability concerns. The economics for the development were positive. The Hayfork Watershed Research and Training Center has conducted preliminary analyses on biomass projects for Devil's Garden and Trinity River Conservation Camps.
Action: Apply for federal grants to conduct engineering and feasibility studies for one or more of these projects. Install one to three combined heat and power units, using new technologies, at Forestry Conservation Camps.

2.8 *Greenhouse Gas Benefits from Bioenergy*
Action: Release a solicitation targeting research projects that study the life cycle greenhouse gas benefits from various types of bioenergy, i.e., energy generation from biomass and anaerobic digestion of various waste streams. Research should compare both the source differences, process changes and the relative GHG benefits from different end uses, whether for transportation fuel, electricity generation, or fuel cell application.

Action 3.1.d. Develop screening criteria to help local agencies determine the applicability of community scale woody biomass technologies and projects in their communities.

4.2. Feed-In Tariffs for Renewable Projects
Problem Statement: Community-scale bioenergy developers would benefit from a simple and streamlined procurement tool that offers an established price sufficient to incentivize new bioenergy development. In May 2012, the CPUC adopted a pricing mechanism called a "Renewable market Adjusting Tariff" or "Re-MAT" for projects up to 3 megawatts. The Re-MAT establishes a starting price for baseload, peaking as-available, and non-peaking as-available power. The prices will be adjusted every two months based on market response and will also be adjusted based on actual power deliveries. The Re-MAT does not include adders for specific technologies or benefits such as fire hazard reduction.
Action 4.2.a. Monitor use of Re-MAT to assess whether and the extent to which it is incentivizing new bioenergy projects. Make adjustments if needed to ensure it incentivizes different forms of bioenergy and adequately accounts for the different bioenergy types' costs and benefits.
Action 4.2.b. Ensure that dairy digesters, community-scale forest biomass and other types of bioenergy projects benefit from the SB 32 feed-in-tariff and

consider use of other procurement mechanisms for small scale bioenergy projects.

4.5 Pursue Federal Funding Opportunities for Bioenergy

Action: State and Federal agencies will coordinate to identify and pursue opportunities for federal research, development and commercialization of bioenergy facilities, including funding from the US Department of Agriculture, Forest Service, Environmental Protection Agency, Department of Energy and other federal partners.

4.6 Consider Adoption of Offset Protocols for Bioenergy

Problem Statement: Currently, the Air Resources Board has a greenhouse gas offset protocol for reducing the emissions from livestock waste, but not for other greenhouse gas reductions associated with bioenergy. Adoption of additional offset protocols under AB 32 could help to monetize the greenhouse gas emissions benefits associated with bioenergy.
Action: The Air Resources Board should consider the adoption of additional protocols and additional opportunities under AB 32 to measure, account for and verify the greenhouse gas emissions benefits of different bioenergy sources and technologies.